CLAIMS

I claim:

1. A device comprising:
a first I/O bus-interface circuit; and
an on-the-fly message manipulation circuit connected to said first I/O bus-interface circuit, wherein said on-the-fly message manipulation circuit sets on-the-fly a pre-selected sub-unit of a pre-selected message-unit of a message to a pre-selected state as said pre-selected message-unit is passed through said device.

2. The device of Claim 1 wherein on-the-fly manipulation circuit further comprises:
a message detector module comprising:
an input coupled to said first I/O bus-interface circuit; and
a message-detected line, wherein in response to information indicative of said message on said input, said message detector module generates an active signal on said message-detected line.

3. The device of Claim 1 wherein said on-the-fly message manipulation circuit further comprises:
a message-unit detector module having a message-unit detected line, wherein said message-unit detector module generates an active signal on said message-unit detected line upon detecting said pre-selected message-unit of said message.

4. The device of Claim 2 wherein said on-the-fly message manipulation circuit further comprises:

a message-unit detector module having a message-unit detected line, wherein said message-unit detector module generates an active signal on said message-unit detected line upon detecting said pre-selected message-unit of said message.

5. The device of Claim 4 wherein said on-the-fly message manipulation circuit further comprises:

a message sub-unit state selection module coupled to said message-detected line and to said message-unit detected line, wherein said message sub-unit state selection module sets said pre-selected sub-unit of said pre-selected message-unit of said message to said pre-selected state after receiving said active signal on said message-detected line, and said active signal on said message-unit detected line.

6. The device of Claim 1 wherein said message is a SCSI Parallel Protocol Request Message.

7. The device of Claim 1 wherein said device is a SCSI expander that does not support adjustable active filtering.

8. The device of Claim 1 wherein said device is a SCSI expander that supports adjustable active filtering.

9. The device of Claim 6 wherein said pre-selected message-unit has a size of one byte.

10. The device of Claim 9 wherein said pre-selected sub-unit is a precompensation enable control bit.

11. The device of Claim 1 wherein said pre-selected message-unit has a size of one byte.

12. The device of Claim 1 further comprising:
a second I/O bus-interface circuit connected to said on-the-fly message manipulation circuit.

13. A SCSI expander comprising:
a SCSI message manipulation circuit comprising:
a message-detected line;
a message-unit detected line; and
a message sub-unit state selection module connected to said message-detected line and to said message-unit detected line, wherein said message sub-unit state selection module sets a pre-selected sub-unit of a pre-selected message-unit of a SCSI message to a pre-selected state after receiving an active signal on said message-detected line, and an active signal on said message-unit detected line.

14. The SCSI expander of Claim 13 wherein said SCSI message manipulation circuit further comprises:
a message detector module comprising said message-detected line wherein in response to information indicative of said SCSI message, said message detector module generates said active signal on said message-detected line.

15. The SCSI expander of Claim 13 wherein said SCSI message manipulation circuit further comprises:
a message-unit detector module having said message-unit detected line wherein said message-unit detector module generates said active signal

on said message-unit detected line upon detecting said pre-selected message-unit of said SCSI message.

16. The SCSI expander of Claim 14 wherein said SCSI message manipulation circuit further comprises:

a message-unit detector module having said message-unit detected line wherein said message-unit detector module generates said active signal on said message-unit detected line upon detecting said pre-selected message-unit of said SCSI message.

17. The SCSI expander of Claim 13 wherein said SCSI message is a SCSI Parallel Protocol Request Message.

18. The SCSI expander of Claim 13 wherein said SCSI expander is a SCSI expander that supports adjustable active filtering.

19. The SCSI expander of Claim 13 wherein said SCSI expander supports adjustable active filtering.

20. The SCSI expander of Claim 17 wherein said pre-selected message-unit has a size of one byte.

21. The SCSI expander of Claim 20 wherein said pre-selected sub-unit is a precompensation enable control bit.

22. A SCSI expander comprising:

a SCSI message manipulation circuit comprising:

a message detector module comprising:

a message decoder coupled to receive information indicative of a SCSI message from a SCSI bus; and

a message-detected line connected to said message decoder wherein said message decoder generates an active signal on said message-detected line upon decoding said information indicative of said SCSI message;

a message-unit detector module comprising:

a counter wherein said counter counts message-units in said SCSI message;

a message-unit selection register;

a comparator connected to said counter and to said message-unit selection register; and

a message-unit detected line connected to said comparator, wherein said comparator generates an active signal on said message-unit detected line upon receiving a value from said counter that has a pre-selected relationship to a value stored in said message-unit selection register to indicate that a pre-selected message unit has been detected; and

a message sub-unit state selection module connected to said message-detected line and to said message-unit detected line wherein said message sub-unit state selection module sets a pre-selected sub-unit of said pre-selected message-unit of said SCSI message to a pre-selected state upon receiving said active signal on said message-

detected line, and said active signal on said message-unit detected line, as said pre-selected message-unit passes through said SCSI expander.

23. The SCSI expander of Claim 22 wherein said message sub-unit state selection module further comprises:

an encoder connected to an enable sub-unit bus.

24. The SCSI expander of Claim 23 wherein said message sub-unit state selection module further comprises:

a sub-unit selection register connected to said encoder.

25. The SCSI expander of Claim 22 wherein said message sub-unit state selection module further comprises:

an output bus having a plurality of output lines.

26. The SCSI expander of Claim 25 wherein said message sub-unit state selection module further comprises:

a first plurality of logic gates wherein an output terminal of each logic gate of said first plurality of logic gates is selectively coupled to and selectively decoupled from a different output line of said output bus

27. The SCSI expander of Claim 26 wherein said message sub-unit state selection module further comprises:

an input bus having a plurality of input lines wherein each line in said plurality of input lines is connected to a first input terminal of a different logic gate in said first plurality of logic gates.

28. The SCSI expander of Claim 27 wherein said message sub-unit state selection module further comprises:

a second plurality of logic gates wherein an output terminal of each logic gate of said second plurality of logic gates is connected to a second input terminal of said different logic gate in said first plurality of logic gates.

29. The SCSI expander of Claim 28 wherein said message-detected line is connected to a first input terminal of each logic gate of said second plurality of logic gates.

30. The SCSI expander of Claim 29 wherein said message-unit detected line is connected to a second input terminal of each logic gate of said second plurality of logic gates.

31. The SCSI expander of Claim 30 wherein said message sub-unit state selection module further comprises:

an encoder having an enable sub-unit output bus-including a plurality of lines wherein each line in said enable sub-unit output bus is connected to a third input terminal of a different logic gate in said second plurality of logic gates.

32. The SCSI expander of Claim 31 wherein said message sub-unit state selection module further comprises:

a sub-unit selection register connected to said encoder.

33. A method for configuring a pre-selected sub-unit of a message on-the-fly comprising:

detecting said message using a hardware circuit;

detecting a pre-selected message-unit of said message using said hardware circuit; and

configuring said pre-selected sub-unit of said pre-selected message-unit of said message to a pre-selected state using said hardware circuit as said pre-selected message-unit is passed through a device including said hardware circuit.

34. The method of Claim 33 wherein said message is a SCSI Parallel Protocol Request message.

35. The method Claim 34 wherein said sub-unit is a bit in said SCSI Parallel Protocol Request message specifying signal conditioning supported by said expander.